

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problems Mailbox.**

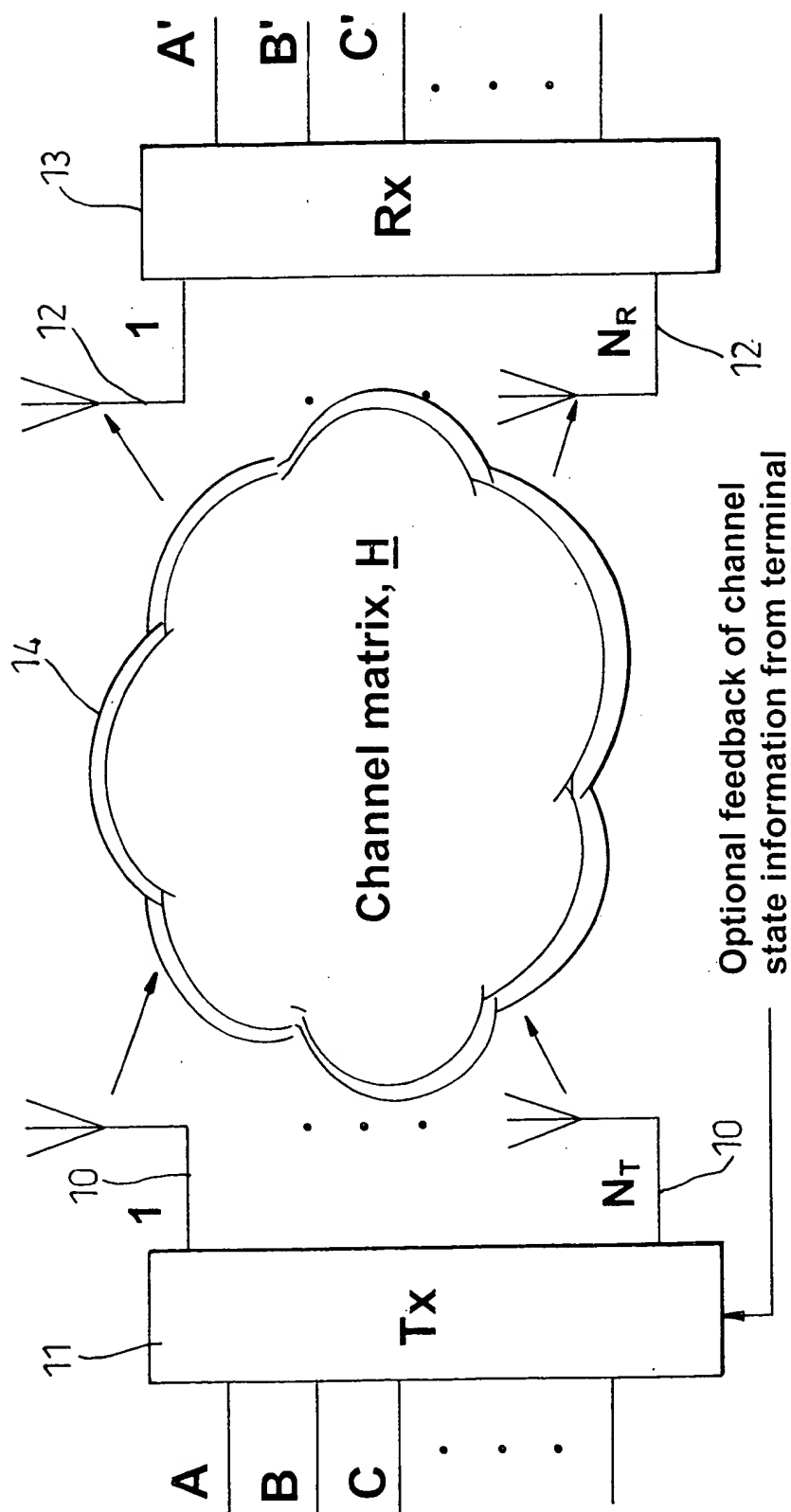


Fig. 1
(PRIOR ART)

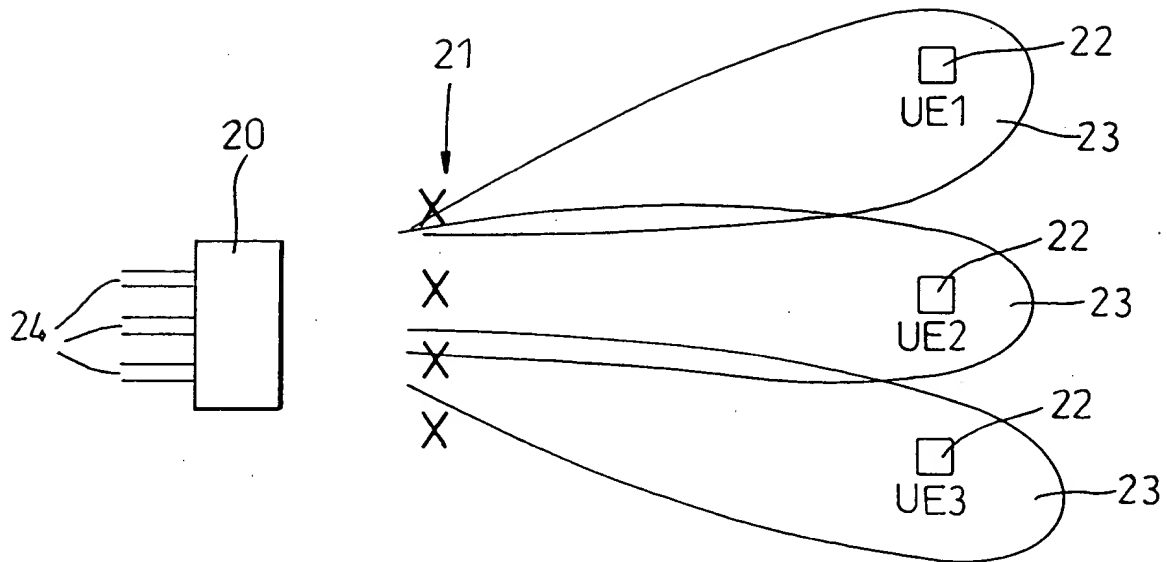


Fig. 2
(PRIOR ART)

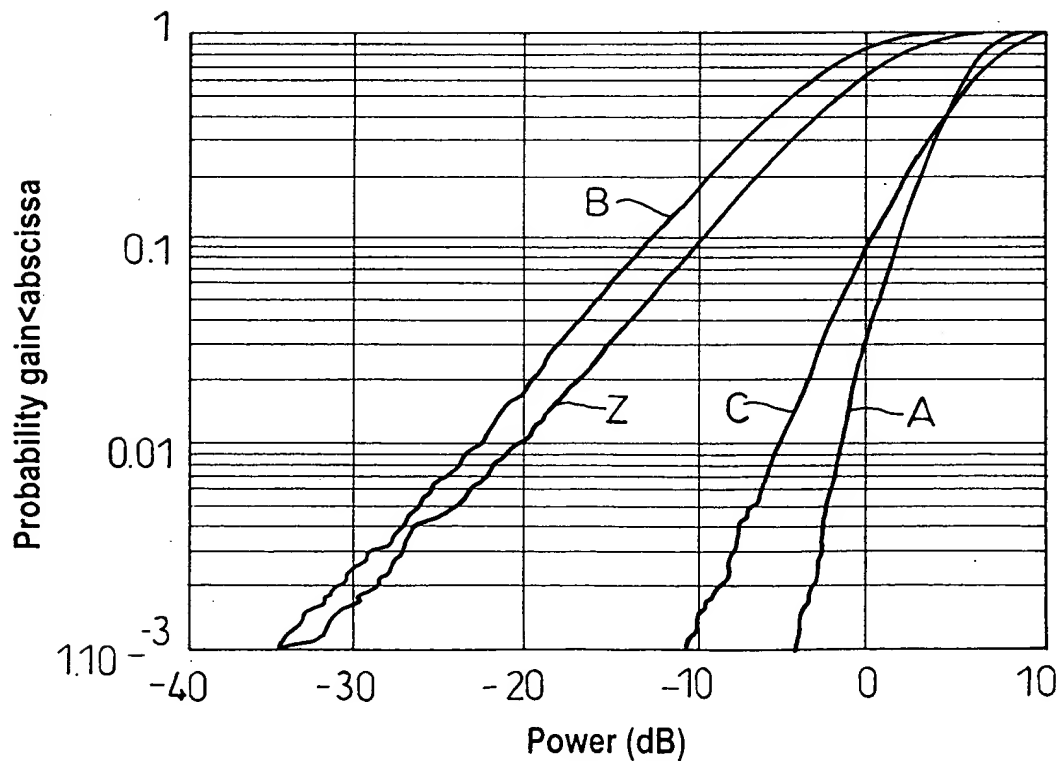
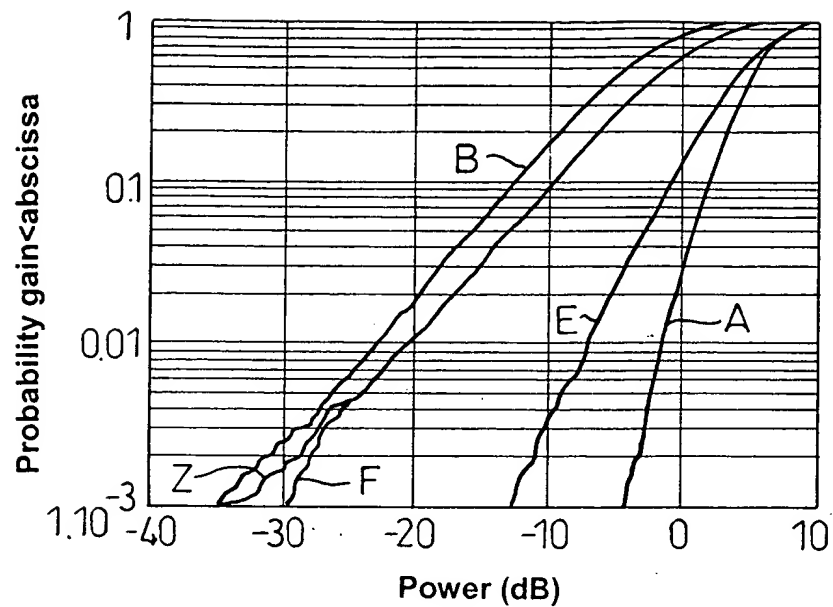


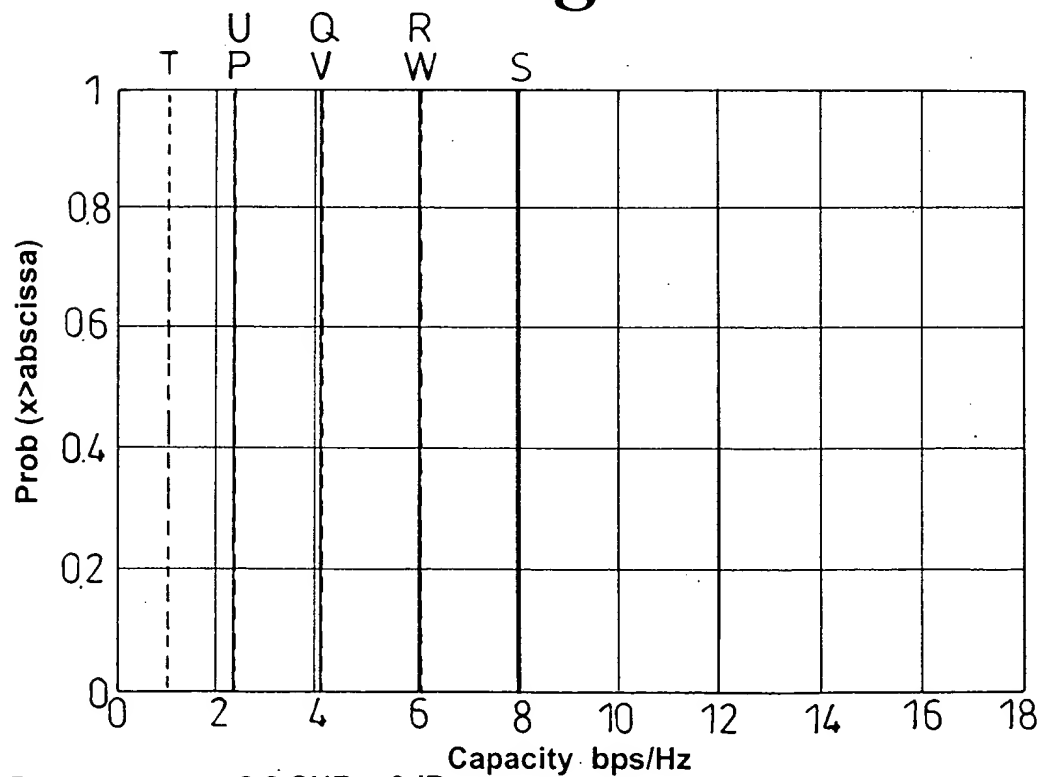
Fig. 3

- A Max channel, no correlation
- B Min channel, no correlation
- C Max channel, complete correlation
- D Min channel, complete correlation (not present)
- Z Baseline 1:1



- A Max channel, polarisation diversity, full polarisation conversion
 B Min channel, polarisation diversity, full polarisation conversion
 E Max channel, pol'n diversity, no polarisation conversion
 F Min channel, pol'n diversity, no polarisation conversion
 Z Baseline 1:1

Fig. 4



- P ————— 2:2 SNR = 0dB
 Q ————— 2:2 SNR = 6dB
 R ————— 2:2 SNR = 12dB
 S ————— 2:2 SNR = 18dB
 T - - - - - 1:1 SNR = 0dB
 U - - - - - 1:1 SNR = 6dB
 V - - - - - 1:1 SNR = 12dB
 W - - - - - 1:1 SNR = 18dB

Fig 5

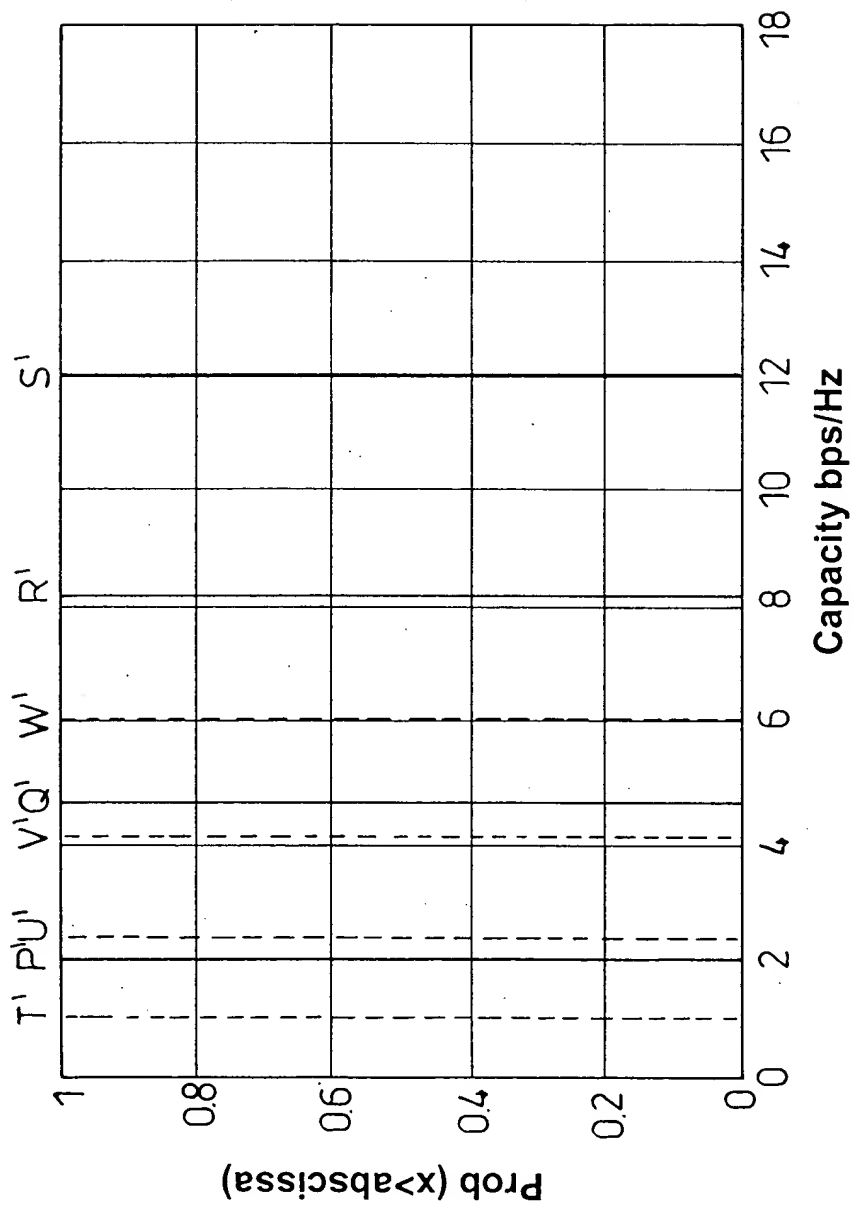
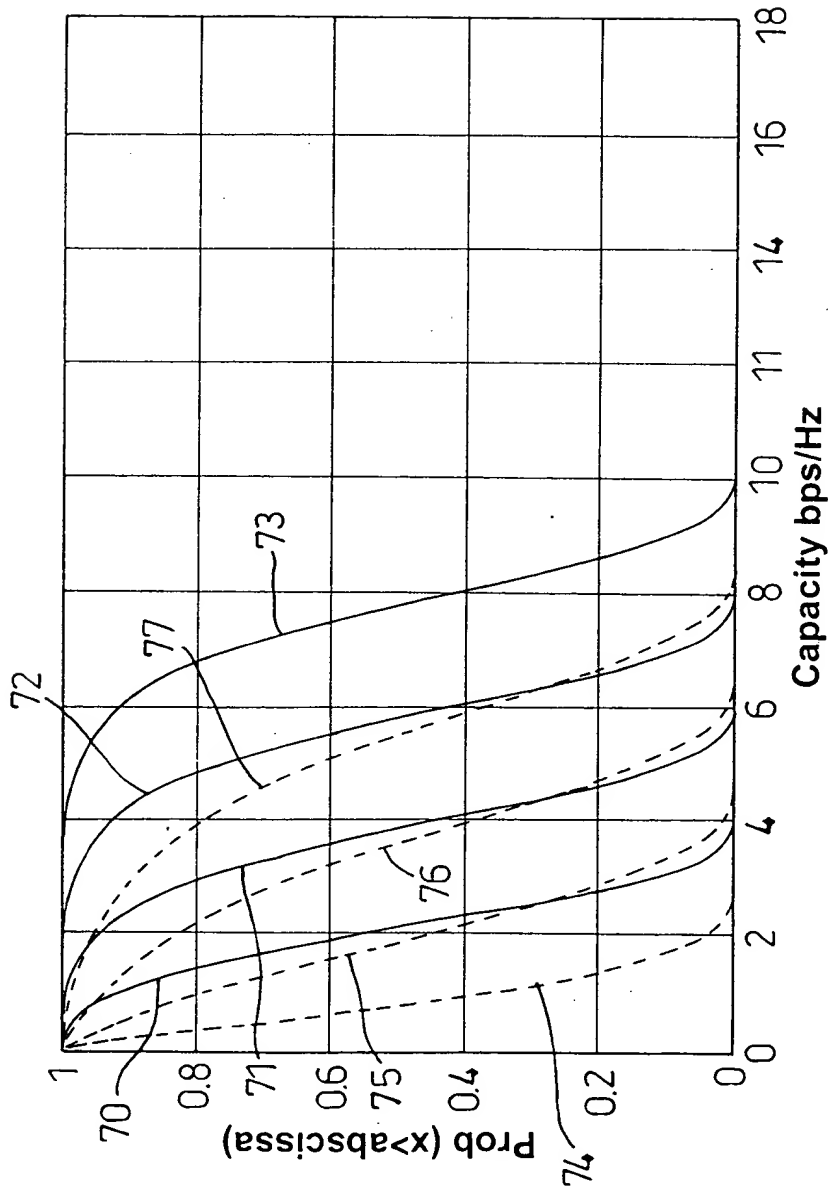


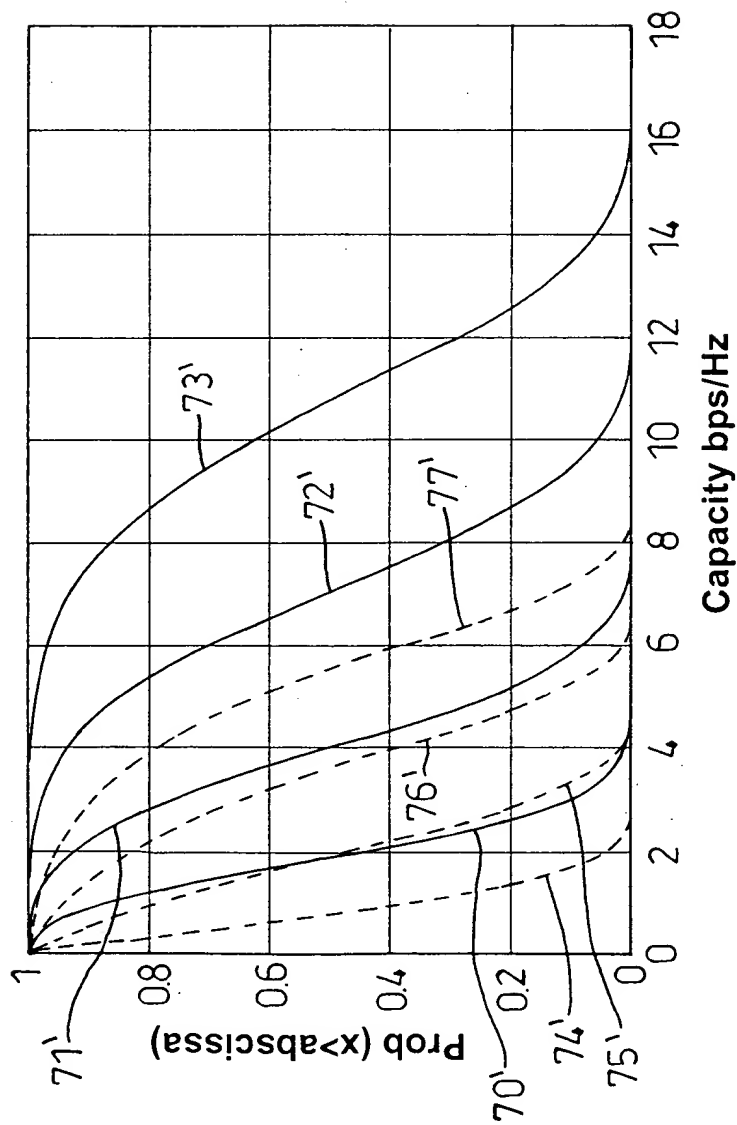
Fig. 6



- 70 ——— 2:2 SNR = 0dB
- 71 ——— 2:2 SNR = 6dB
- 72 ——— 2:2 SNR = 12dB
- 73 ——— 2:2 SNR = 18dB
- 74 - - - - 1:1 SNR = 0dB
- 75 - - - - 1:1 SNR = 6dB
- 76 - - - - 1:1 SNR = 12dB
- 77 - - - - 1:1 SNR = 18dB

Capacity for 2.2 space diversity MIMO system with the basestation antennas (transmitter) completely correlated and the mobile completely uncorrelated.

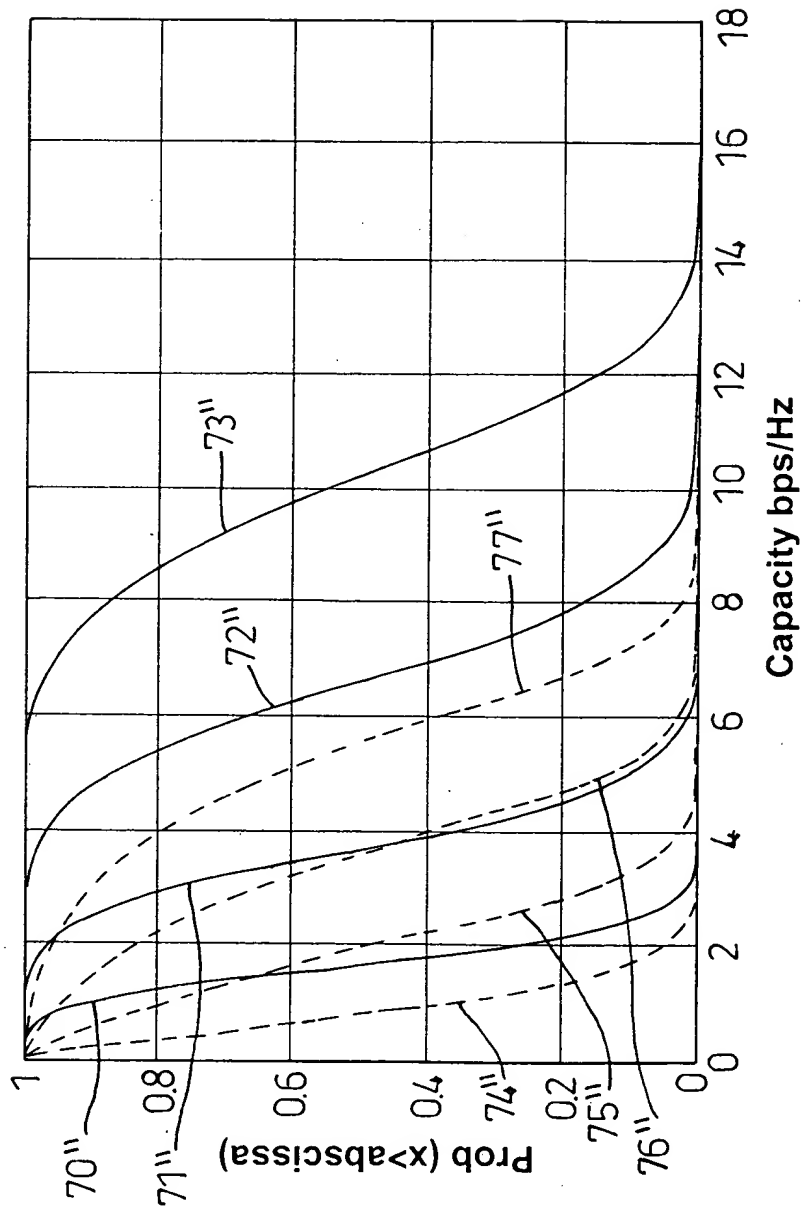
Fig. 7



70' ——— 2:2 SNR = 0dB
 71' ——— 2:2 SNR = 6dB
 72' ——— 2:2 SNR = 12dB
 73' ——— 2:2 SNR = 18dB
 74' - - - - 1:1 SNR = 0dB
 75' - - - - 1:1 SNR = 6dB
 76' - - - - 1:1 SNR = 12dB
 77' - - - - 1:1 SNR = 18dB

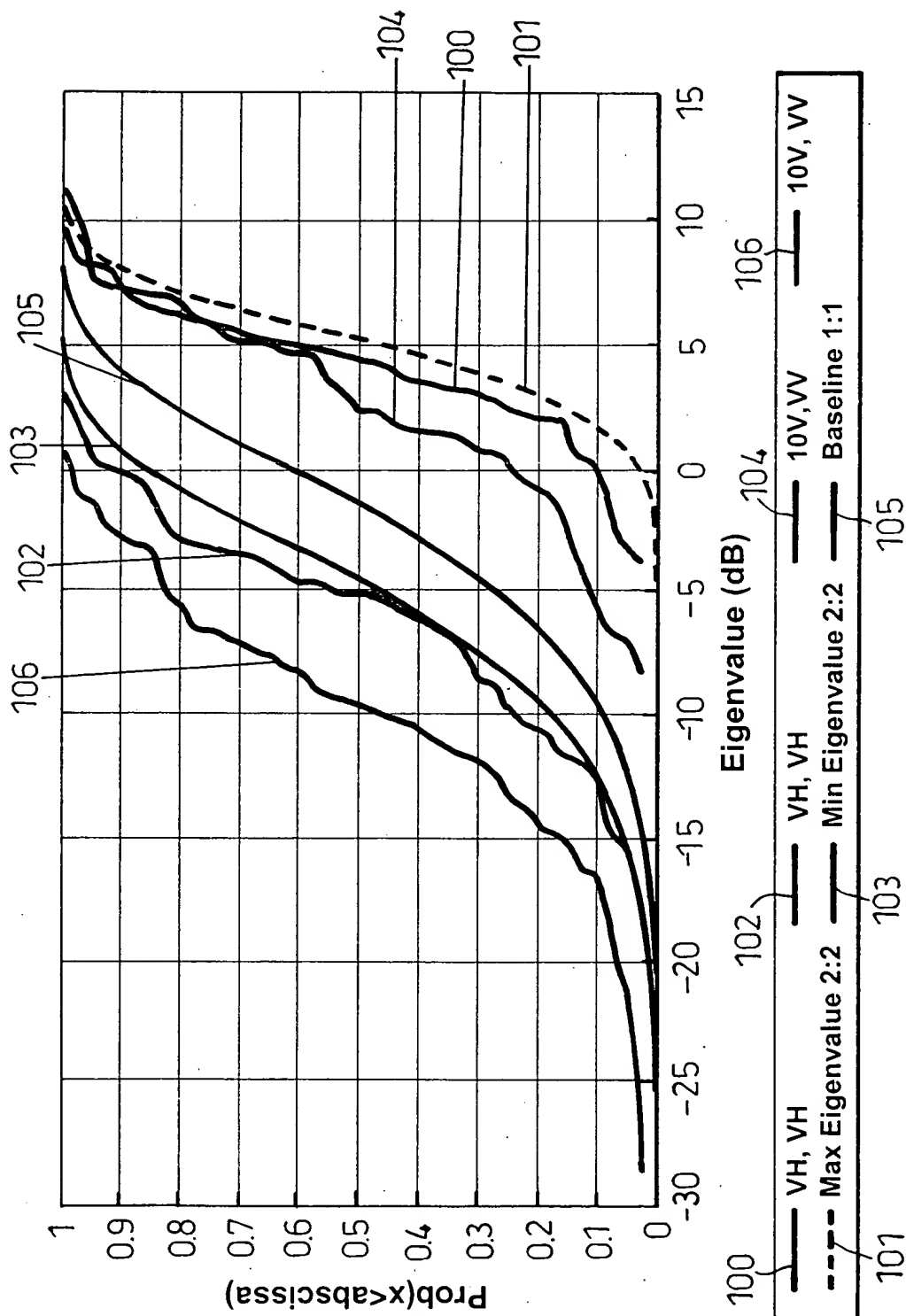
Capacity for 2:2 polarisation diversity MIMO with no polarisation conversion in the environment

Fig. 8



70" — 2:2 SNR = 0dB
 71" — 2:2 SNR = 6dB
 72" — 2:2 SNR = 12dB
 73" — 2:2 SNR = 18dB
 74" --- 1:1 SNR = 0dB
 75" --- 1:1 SNR = 6dB
 76" --- 1:1 SNR = 12dB
 77" --- 1:1 SNR = 18dB

Fig. 9



Measured distributions for the power gains for the orthogonal MIMO paths for 2:2 space and polarisation diversity configurations.

Fig 10

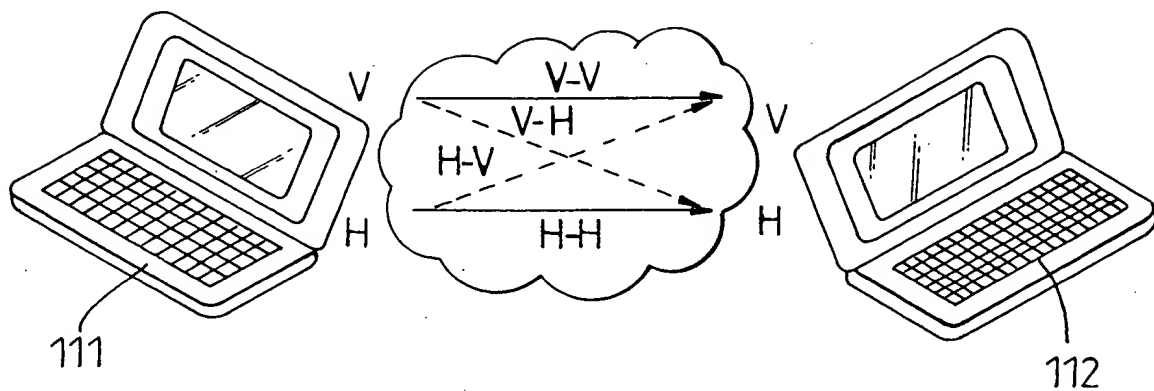


Fig. 11

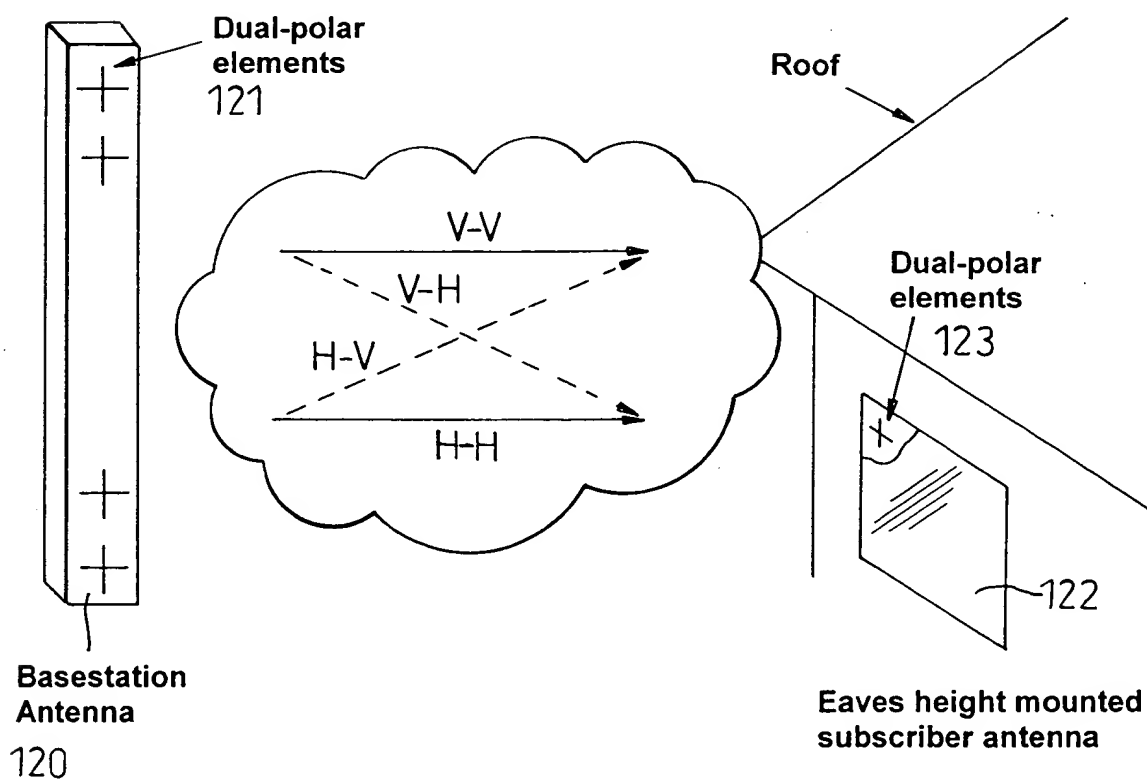


Fig 12

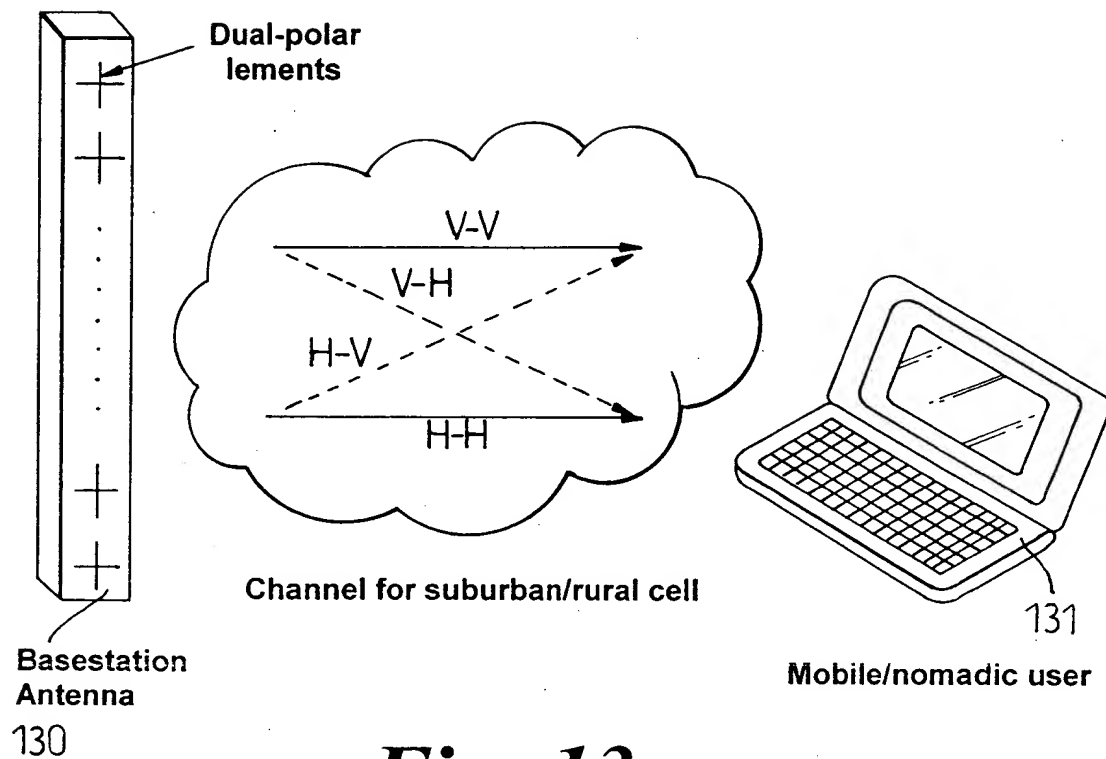


Fig. 13

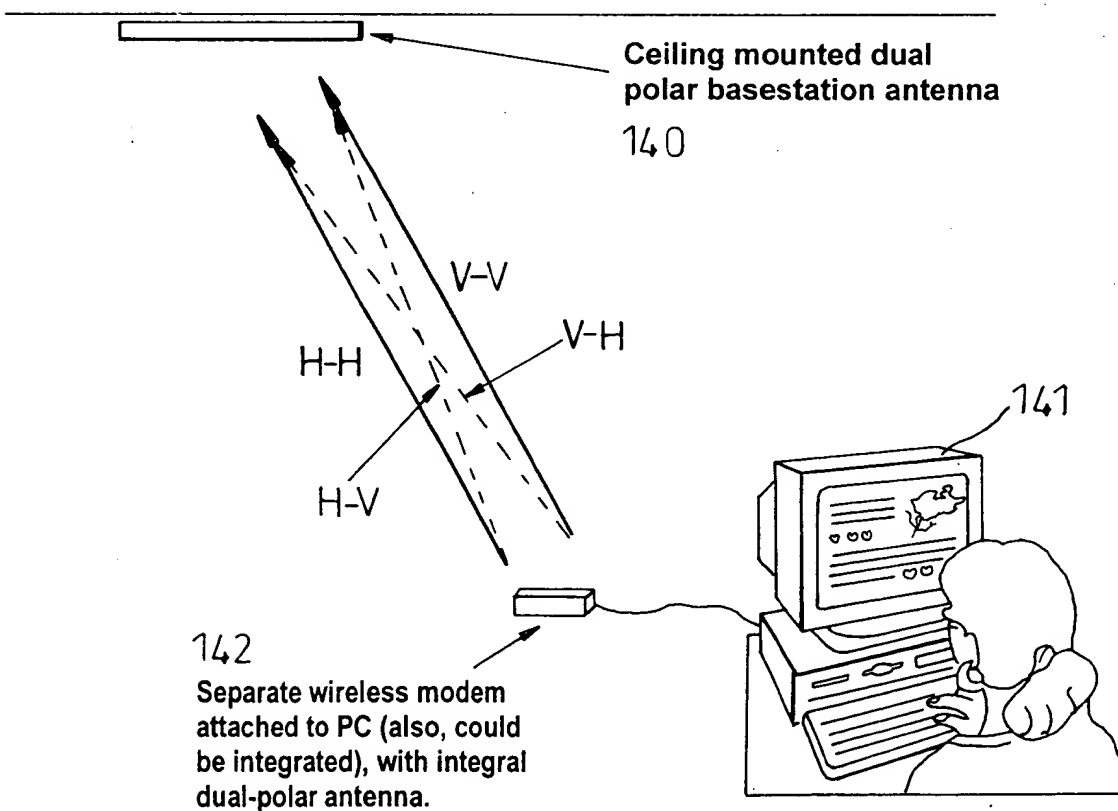


Fig 14

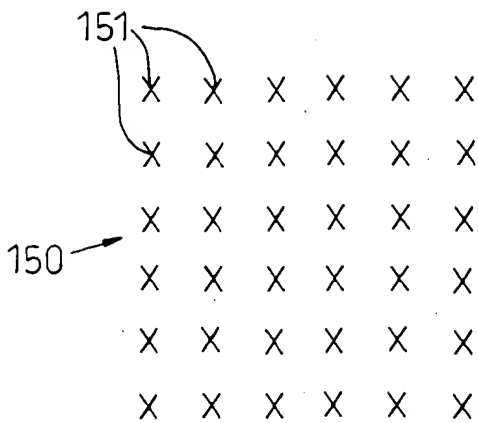


Fig. 15A

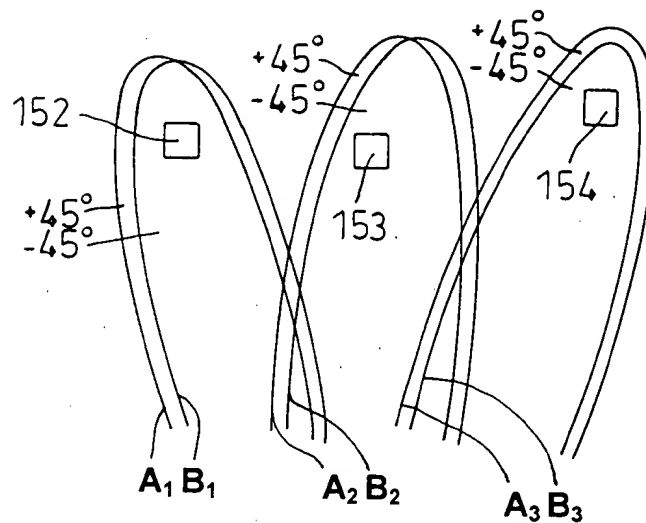


Fig. 15B

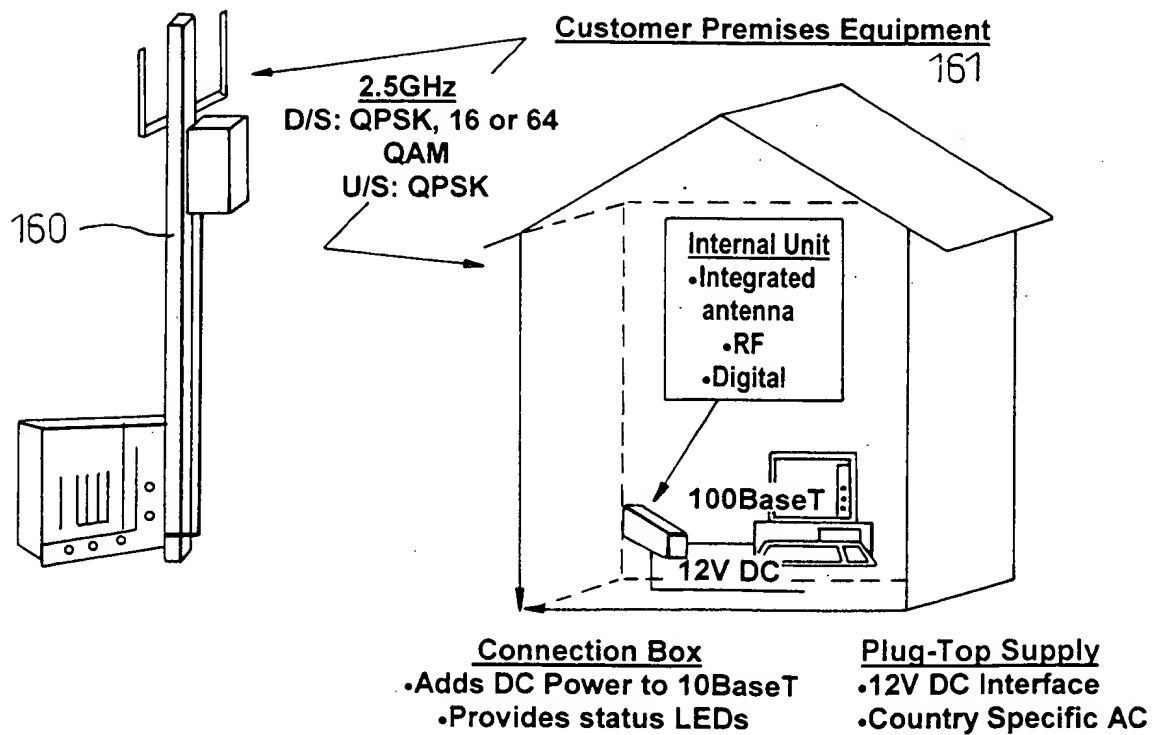


Fig 16

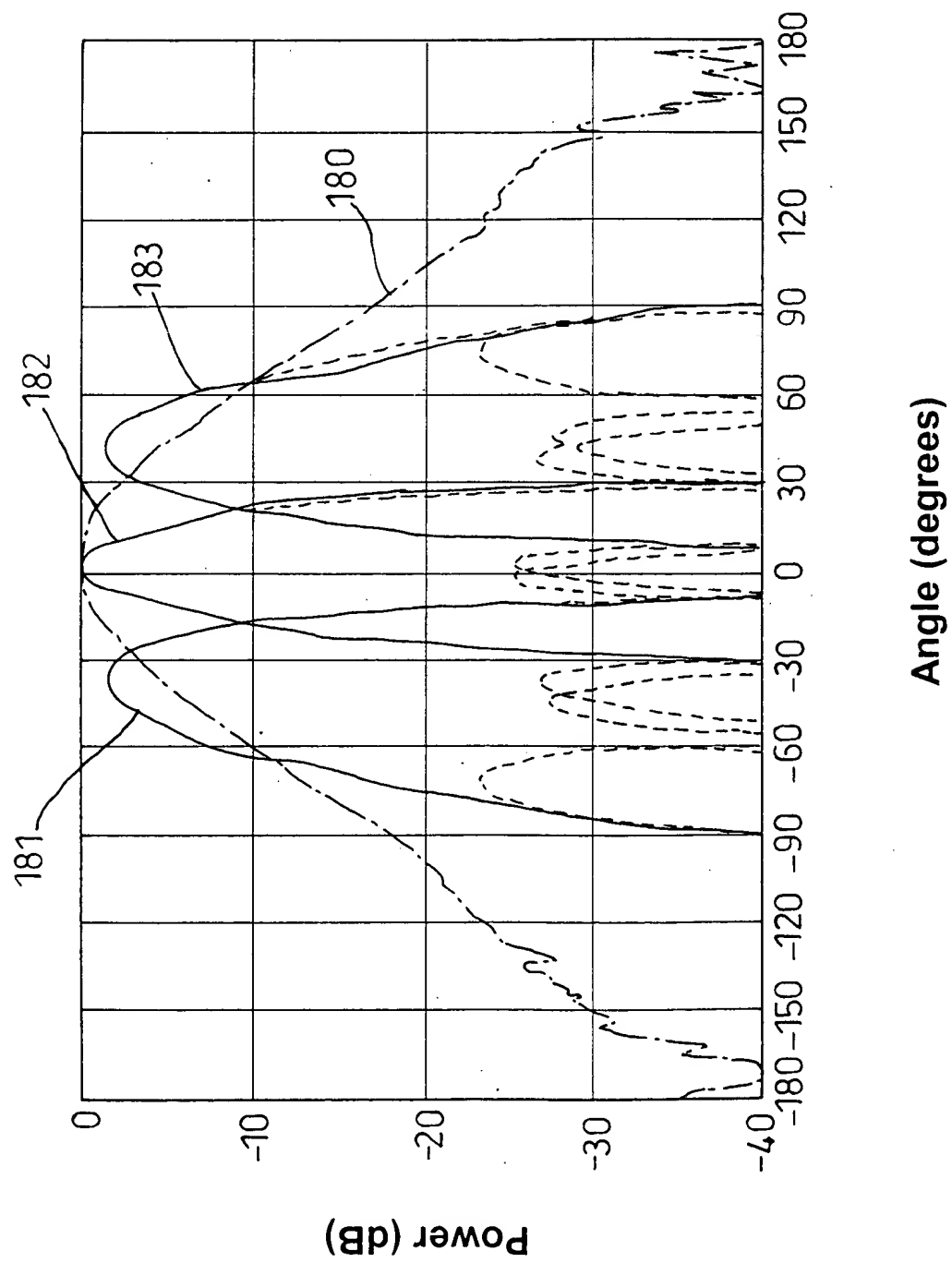
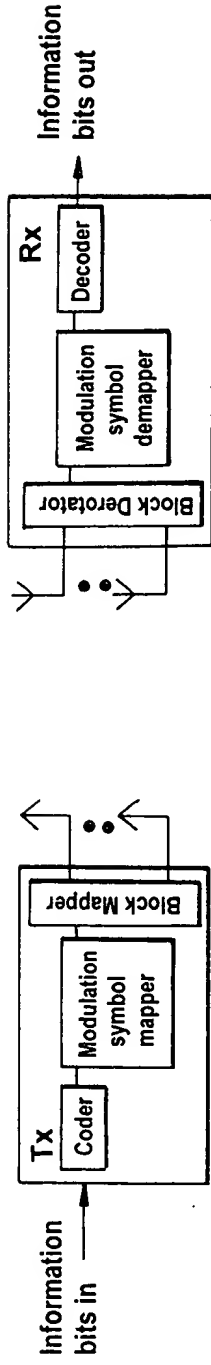


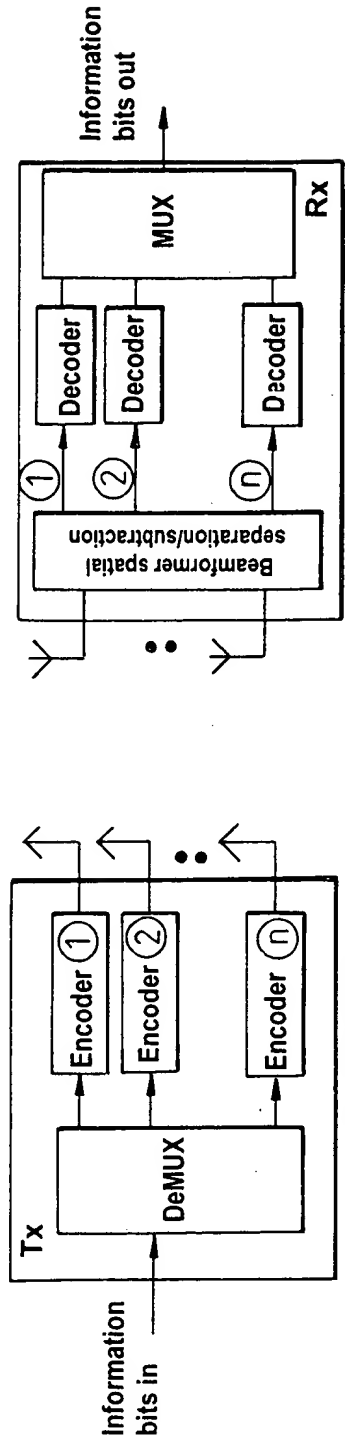
Fig. 18

Basic Space-Time Coding Techniques

Space-Time Block Coding (STBC)
 . defined for 3G



Layered Space-Time (BLAST)
 . more applicable to fixed/nomadic



Space-Time Trellis Coding (STTC)
 . suitable for both mobile and fixed

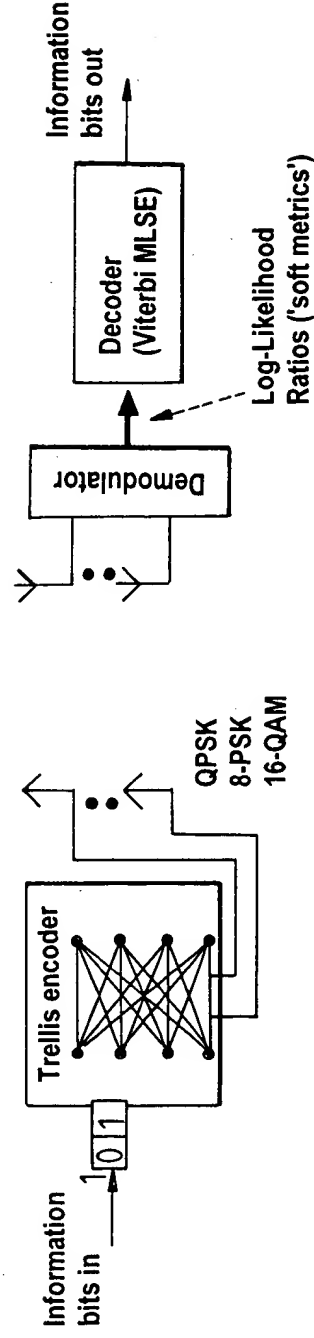


Fig 19

Feedback STC – Separated Subchannels

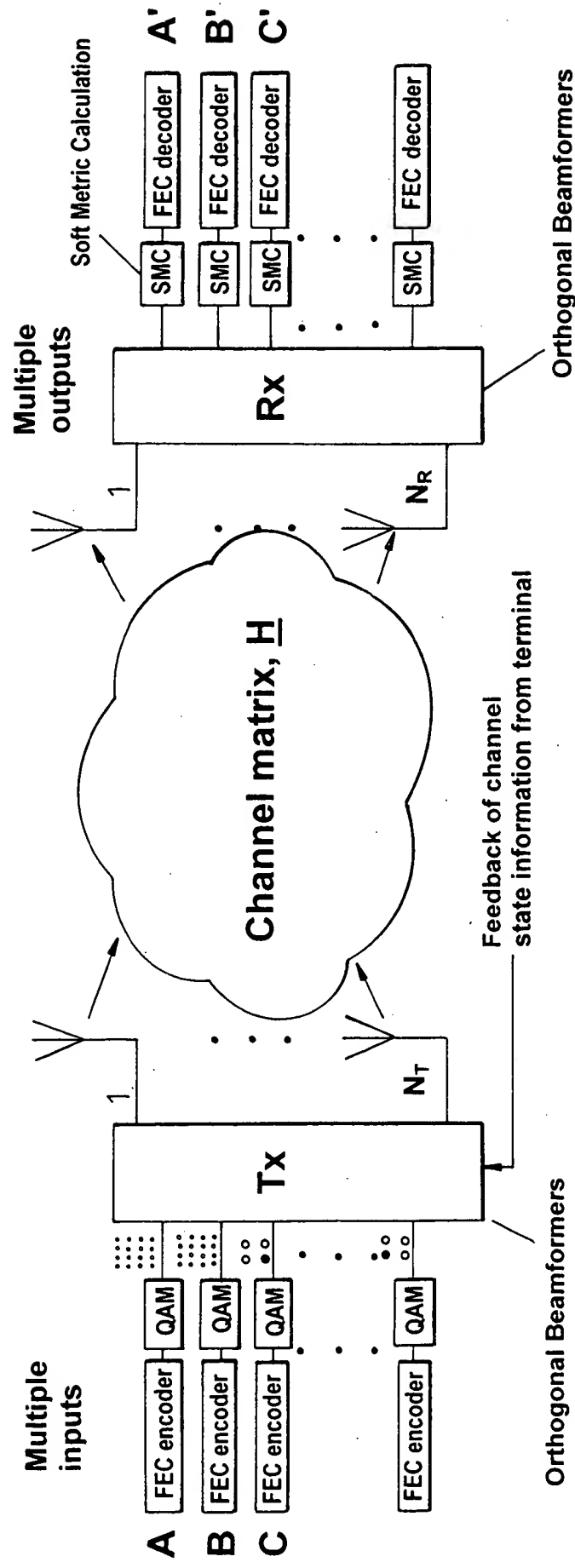


Fig. 20

Spatial Multiplexing STC

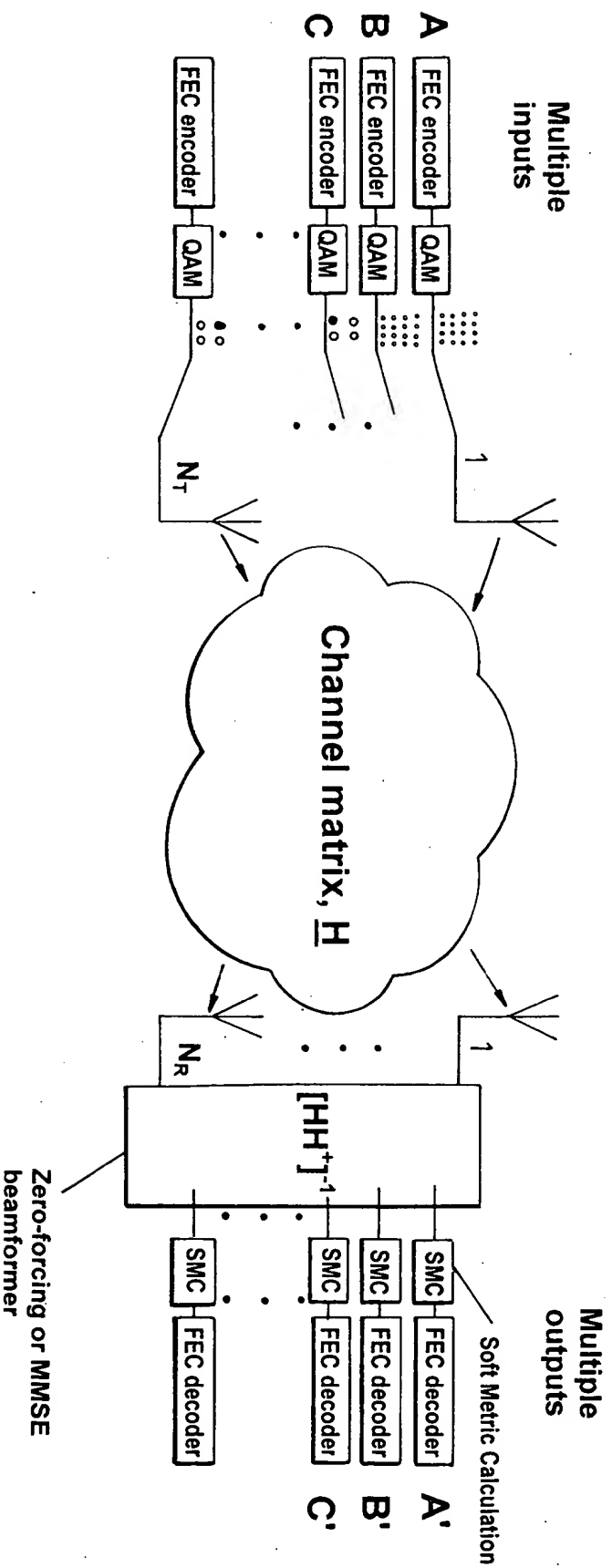


Fig. 21

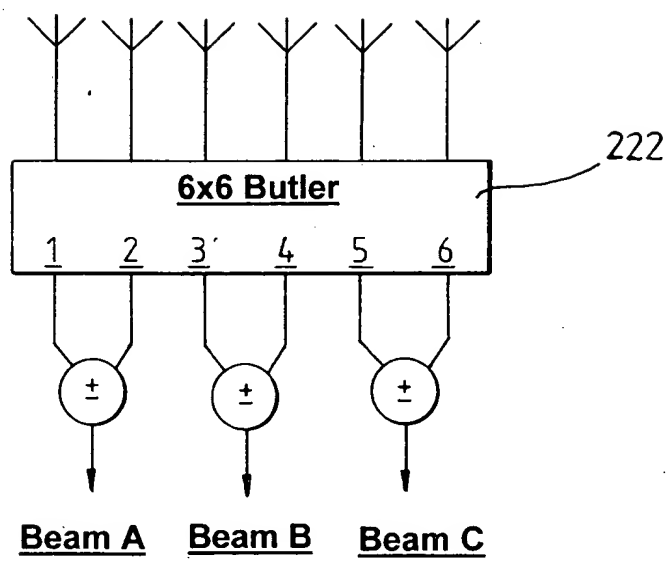


Fig. 22